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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,983	12/03/2003	Mark Gerald M. Cruz	TI-36737 (032350.B571)	5067

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EXAMINER

GOFF II, JOHN L

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/726,983

Applicant(s)

CRUZ ET AL.

Examiner

John L. Goff

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the amendment filed on 8/8/06. The previous 35 USC 112 rejections have been overcome.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 1, 3, and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imanishi et al. (U.S. Patent 6,206,066) in view of Kudoh et al. (U.S. Patent 4,656,048), Shinohara et al. (JP 57085250 and the abstract), and Sheppard et al. (U.S. Patent 6,284,569).

Imanishi et al. disclose a method of attaching a die to a substrate in the semiconductor art comprising providing a substrate having a die attach region, positioning a dispensing tool having a circular aperture adjacent the die attach region (e.g. the aperture 0.1 mm from the die attach region), dispensing an adhesive (e.g. epoxy) through the aperture and onto the respective die

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attach region in multiple passes of the aperture over the die attach region to form a rectangular adhesive region approximately equal to the size of the die, and attaching the die to the die attach region (Figures 1 and 2 and Column 5, lines 43-57 and Column 6, lines 59-64 and Column 7, lines 66-67 and Column 8, lines 1-4 and Column 9, lines 12-14). Imanishi et al. do not disclose using an aperture having a length greater than a width, e.g. rectangular. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the aperture of the dispensing tool taught by Imanishi et al. a rectangular aperture as opposed to a circular aperture as was well known in the art as shown for example by both Kudoh et al. and Shinohara et al. as a rectangular aperture applies the adhesive with a uniform thickness and the rectangular aperture having a length equal to the formed adhesive region allows the adhesive to be applied in a single pass.

Kudoh et al. disclose a steel dispensing tool including an aperture for applying paste in the semiconductor art wherein the aperture is rectangular (e.g. having a width of 0.03 to 0.3 mm) as opposed to circular such that the paste is applied with a uniform thickness (Column 1, lines 10-14 and 43-46 and Column 3, lines 23-55). Shinohara et al. disclose a dispensing tool including a rectangular aperture for applying adhesive in the semiconductor art wherein the rectangular aperture allows the adhesive to be applied in a single pass of the aperture perpendicular to the length of the aperture (Figure 3 and the abstract).

Additionally, Imanishi et al. do not specifically teach the substrate is formed of polyimide having a plurality of die attach regions, it being noted Imanishi et al. are not limited to any particular substrate and suggest as exemplary a circuit board. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the substrate in Imanishi

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et al. as modified by Kudoh et al. and Shinohara et al. those well known and conventional in the die attaching art including polyimide packages having a plurality of die attach regions, circuit boards having a plurality of die attach regions, etc. as shown for example by Sheppard et al. depending upon the particular die attached product produced.

Sheppard et al. are exemplary in the semiconductor art of conventional die attaching wherein dies are attached to substrates such as polyimide tapes including a plurality of die attach regions, circuit boards having a plurality of die attach regions, etc. (Column 2, lines 23-26 and Column 4, lines 16-19).

Regarding claim 3, Imanishi et al. do not specifically teach the aperture has a width of 0.10 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the width of the aperture in Imanishi et al. as modified by Kudoh et al., Shinohara et al., and Sheppard et al. as a function of the ability of the aperture to properly dispense the adhesive with a constant thickness it being noted Kudoh et al. specifically suggest a width within the range of 0.03 mm to 0.3 mm.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imanishi et al., Kudoh et al., Shinohara et al., and Sheppard et al. as applied to claims 1, 3, and 4 above, and further in view of Sakumoto et al. (U.S. Patent 5,032,438).

Imanishi et al., Kudoh et al., Shinohara et al., and Sheppard et al. as applied above teach all of the limitations in claim 2 except for a specific teaching that the length of the aperture is between 3 and 9 mm. It would have been obvious to one of ordinary skill in the art at the time the invention was made to experimentally determine the length of the aperture in Imanishi et al. as modified by Kudoh et al., Shinohara et al., and Sheppard et al. as a function of the dimensions

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of die to be attached as doing so would have required nothing more than ordinary skill and routine experimentation, it being noted Sakumoto et al. disclose usual dies sizes are 1 to 8 mm (Column 2, lines 5-8).

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1, 3, and 4 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of copending Application No.

10/851,552 in view of Kudoh et al., Shinohara et al., and Sheppard et al. Claim 13 of copending Application No. 10/851,552 fully encompasses and discloses all the limitations of claims 1, 3, and 4 of the instant Application except for the limitation that the adhesive is provided by dispensing from a rectangular aperture onto a substrate having a plurality of die attach regions

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which was known and obvious in view of Kudoh et al., Shinohara et al., and Sheppard et al. as discussed above.

This is a provisional obviousness-type double patenting rejection.

8. Claim 2 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of copending Application No. 10/851,552, Kudoh et al., Shinohara et al., and Sheppard et al. as applied to claims 1, 3, and 4 above, and further in view of Sakumoto et al. Claim 13 of copending Application No. 10/851,552 as modified by Kudoh et al., Shinohara et al., and Sheppard et al. fully encompass and disclose all the limitations of claim 2 of the instant Application except for the limitation that that the length of the aperture is between 3 and 9 mm which was known and obvious in view of Sakumoto et al. as discussed above.

This is a provisional obviousness-type double patenting rejection.

9. Claims 1-4 are directed to an invention not patentably distinct from claim 13 of commonly assigned copending Application No. 10/851,552. Specifically, see the double patenting rejections above.

10. The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned copending Application No. 10/851,552, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c),

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either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Response to Arguments

11. Applicant's arguments filed 8/8/06 have been fully considered but they are not persuasive.

Applicants argue, "Claim 1 describes a method for attaching a die to a substrate. The method includes the step of attaching a die to the epoxy region, a length of the die approximately equal to the length of the rectangular aperture. Imanishi not only does not disclose this step, it in fact teaches away from this step."

The claim requires "a length of the die approximately equal to the length of the rectangular aperture" (Emphasis added). Imanishi et al. disclose forming an adhesive region approximately equal to the length of the die such that Imanishi et al. as modified by Kudoh et al. and Shinohara et al. disclose applying adhesive to form the adhesive region from a rectangular aperture wherein a length of the die is approximately equal to the length of the rectangular aperture. Applicants have not demonstrated any showing other than by attorney argument that the length of the die would not be considered "approximately" equal to the length of the rectangular aperture. Furthermore, applicants specification does not further define the term

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“approximately” to any degree that would require other than disclosed by Imanishi et al., and applicants figures show applying adhesive to less than the complete die attach region.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

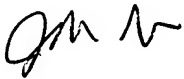
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **(571) 272-1216**. The examiner can normally be reached on M-F (7:15 AM - 3:45 PM).

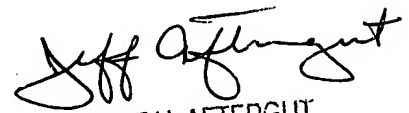
If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



John L. Goff



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